

PATENT ABSTRACTS OF JAPAN

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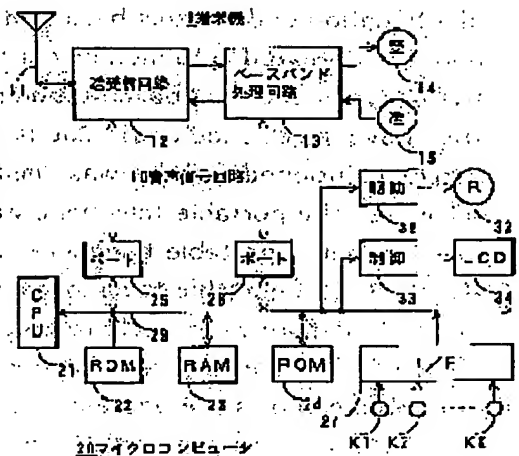
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(54) PORTABLE TELEPHONE SET AND NETWORK FOR THE SAME

(57)Abstract:

PROBLEM TO BE SOLVED: To display its own current position of portable telephone set.

SOLUTION: A microcellular type portable telephone set 1 is provided with a data table showing the relation of correspondence between the data of location of base station and the identification code of this base station. When a prescribed operating key is operated, by referring to the data table, the identification code of base station to which the portable telephone set 1 is connected is converted to the data of location of this base station. Corresponding to these converted data, the current position of the base station is displayed on a display element 34.



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CLAIMS

[Claim(s)]

[Claim 1] When a portable telephone is in the area of the base station of arbitration, while this is managed in a database station through the above-mentioned base station In the portable telephone of a micro cellular communication system with which the identification code of the above-mentioned base station was managed in the above-mentioned portable telephone When it has the data table showing the correspondence relation between the data of the address of the above-mentioned base station, and the identification code of this base station, a display device, and a predetermined actuation key and the above-mentioned actuation key is operated, The portable telephone as which the identification code of the above-mentioned base station managed in the above-mentioned portable telephone by referring to the above-mentioned data table is changed into the data of the address of this base station, and the above-mentioned address was displayed on the above-mentioned display device with this changed data.

[Claim 2] The portable telephone with which the above-mentioned data table was written in the internal memory in the portable telephone according to claim 1:

[Claim 3] The portable telephone with which attachment and detachment of the above-mentioned internal memory were made to be enabled in the portable telephone according to claim 2.

[Claim 4] The portable telephone with which the data of the above-mentioned address are the character code which shows the address in a portable telephone according to claim 2, and the above-mentioned address was displayed on the above-mentioned display device as a character string which shows the above-mentioned address.

[Claim 5] The portable telephone as which the data of the above-mentioned address are image data which shows a map in a portable telephone according to claim 2, and the above-mentioned address was displayed on the above-mentioned display device with the above-mentioned map.

[Claim 6] When a portable telephone is in the area of the base station of arbitration, while this is managed in a database station through the above-mentioned base station In the cellular telephony network of a micro cellular communication system where the identification code of the above-mentioned base station was managed in the above-mentioned portable telephone the above-mentioned portable telephone It has a display device and an actuation key for connecting this portable telephone to a host office. The above-mentioned host office When it has the data table showing the correspondence relation between the data of the address of the above-mentioned base station, and the identification code of this base station and the above-mentioned portable telephone is connected to the above-mentioned host office through the above-mentioned base station by actuation of the above-mentioned actuation key, The identification code of the above-mentioned base station managed in the above-mentioned portable telephone by referring to the above-mentioned data table The cellular telephony network where it is changed into the data of the address of this base station, this changed data is transmitted to the above-mentioned portable telephone through the above-mentioned base station from the above-mentioned host office, and the above-mentioned address was displayed on the above-mentioned display device with this transmitted data.

[Claim 7] The cellular telephony network where the data of the above-mentioned address are the character code which shows the address in a cellular telephony network according to claim 6, and the

above-mentioned address was displayed on the above-mentioned display device as a character string which shows the above-mentioned address.

[Claim 8] The cellular telephony network where the data of the above-mentioned address are image data which shows a map in a cellular telephony network according to claim 6, and the above-mentioned address was displayed on the above-mentioned display device with the above-mentioned map.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a portable telephone and its network.

[0002]

[Description of the Prior Art] In the cellular-phone system of a micro-cellular communication system, for example, PHS, big message area as a whole is constituted by preparing much small message area.

[0003] That is, while the message area Z11 called a wireless zone by the base station CS 11 is constituted, for example in drawing 6, wireless zone Z12-Z1N is constituted by a base station CS 12 - CS1N, respectively. In this case, although a zone Z11- zone Z1N radius changes with surrounding conditions, generally it is about 100m about 400m at the maximum.

[0004] moreover, the wireless zones Z11-Z -- it approaches fundamentally, and is prepared and 1 N of message area A1 called location registration area by these zone Z11-Z1N is constituted.

[0005] Furthermore, while wireless zone Z21-Z2M are constituted by base station CS21-CS2M, the location registration area A2 is constituted by zone Z21-Z2M, and much location registration area (not shown) is constituted by them like the following. In this case, the location registration area A1 and A2 and -- also approach fundamentally, and are prepared, and as a whole more big message area is constituted. In addition, although illustration is not carried out, a base station CS 11 - CS1N, CS21-CS2M, and -- are connected to a local switch and a database station (PHS control station).

[0006] And if a power source is turned ON for example, when the PHS terminal 1 is in a zone Z11 so that it may be shown as **, the demand of location registration will be performed from a terminal 1 to a base station CS 11, and it will be registered into a database station that a terminal 1 is in a zone Z11. Moreover, identification code CS-ID of a base station CS 11 is notified to a terminal 1 from a base station CS 11.

[0007] However, if a terminal 1 moves to the zone Z12 of the next door of the same location registration area A1 from a zone Z11 in the state of ON of the power source of a terminal 1 so that it may be shown as **, identification code CS-ID of a base station CS 12 will be shortly notified to a terminal 1 from a base station CS 12.

[0008] Furthermore, if a terminal 1 moves to the zone Z21 of another location registration area A2 from a zone Z11 in the state of ON of the power source of a terminal 1 so that it may be shown as **, it will

be registered into a database office that the demand of location registration is performed from a terminal 1 to a base station CS 21, and a terminal 1 is in a zone Z21 shortly. Moreover, identification code CS-ID of a base station CS 21 is notified to a terminal 1 from a base station CS 21.

[0009] In this way, even if a terminal 1 moves, the location of a terminal 1 is managed in a database station per location registration area. Therefore, drawing 5 which can also receive arrival of the mail shows a format of identification code CS-ID transmitted to a terminal 1 from a base station not to mention the ability of dispatch to do a terminal 1. This identification code CS-ID is used as the entrepreneur identification code 9 bits of a head indicate the entrepreneur of PHS to be, and let the next 33 bits be the addition identification code for the outdoor public which will pinpoint a base station.

[0010] And this addition identification code for the outdoor public consists of location registration area A1 and A2, a simultaneous paging area number which specifies —, and addition identification code which pinpoints a wireless zone for every location registration area.

[0011] Therefore, a terminal 1 is a base station unit, and it connects or it can know the connected base station.

[0012]

[Problem(s) to be Solved by the Invention] This invention tends to give unprecedented added value to a terminal 1 paying attention to the cellular-phone systems of a micro cellular communication system being the above structure.

[0013] Namely, (1) Generally the size of wireless zone Z11-Z1N, Z21-Z2M, and — is about radius 100m. (2) A terminal 1 is a base station unit, namely, is a wireless zone unit, and can identify area.

It uses and the possessor of a terminal 1 is going to enable it to get to know the location in which he is present easily.

[0014]

[Means for Solving the Problem] For this reason, when a portable telephone is in the area of the base station of arbitration, while this is managed in a database station in this invention through the above-mentioned base station In the portable telephone of a micro cellular communication system with which the identification code of the above-mentioned base station was managed in the above-mentioned portable telephone When it has the data table showing the correspondence relation between the data of the address of the above-mentioned base station, and the identification code of this base station, a display device, and a predetermined actuation key and the above-mentioned actuation key is operated, The portable telephone as which the identification code of the above-mentioned base station managed in the above-mentioned portable telephone by referring to the above-mentioned data table is changed into the data of the address of this base station, and the above-mentioned address was displayed on the above-mentioned display device with this changed data. It carries out.

[0015] Furthermore, when a portable telephone is in the area of the base station of arbitration, while this is managed in a database office in this invention through the above-mentioned base station In the cellular telephony network of a micro cellular communication system where the identification code of the above-mentioned base station was managed in the above-mentioned portable telephone the above-mentioned portable telephone It has a display device and an actuation key for connecting this portable telephone to a host office. The above-mentioned host office When it has the data table showing the correspondence relation between the data of the address of the above-mentioned base station, and the identification code of this base station and the above-mentioned portable telephone is connected to the above-mentioned host office through the above-mentioned base station by actuation of the above-mentioned actuation key, The identification code of the above-mentioned base station managed in the above-mentioned portable telephone by referring to the above-mentioned data table It is changed into the data of the address of this base station, this changed data is transmitted to the above-mentioned portable telephone through the above-mentioned base station from the above-mentioned host office, and it considers as the cellular telephony network where the above-mentioned address was displayed on the above-mentioned display device with this transmitted data.

[0016] Therefore, if a predetermined key stroke is performed, its address will be displayed on the display of a terminal.

[0017]

[Embodiment of the Invention] In drawing 1, a sign 1 shows the terminal of PHS and this terminal 1 has the sound signal circuit 10 for a message; and the microcomputer 20 for system controls.

[0018] And the sound signal circuit 10 has the transceiver antenna 11, the transceiver circuit 12, the baseband processing circuit 13, an earphone 14, and a telephone transmitter 15. And in the baseband processing circuit 13, to the sound signal from a telephone transmitter 15, signal processing for transmission of D/A conversion, time base compaction, etc. is performed, that processed sound signal is supplied to the transceiver circuit 12, it considers as a RF signal, and this signal is transmitted to a base station from an antenna 11.

[0019] Moreover, the high frequency signal from a base station is received by the antenna 11, in the baseband processing circuit 13, signal processing of the complementation is performed with the time of transmission, the sound signal of a partner's basis is taken out, and this sound signal is supplied to an earphone 14.

[0020] Furthermore, data required for connection with a base station etc. are accessed between a base station and a microcomputer 20 through the transceiver circuit 12 and the baseband processing circuit 13.

[0021] Moreover, a microcomputer 20 has CPU21, ROM22 in which various kinds of manipulation routines are written, RAM23 for work areas, and ROM24 for data, and these memory 22-24 is connected to CPU21 through the system bus 29.

[0022] In this case, ROM24 has the data table DTBL showing the correspondence relation between the alphabetic data in which the installation (address) of a base station is shown, and the addition identification code for the outdoor public of identification code CS-ID given to that base station, as shown in drawing 2. In addition, if it becomes the alphabetic data in which an installation is shown, and the magnitude whose 1 set with the addition identification code for the outdoor public is 200 bits, since the number of base stations required to cover 23 wards of metropolitan areas is said to be about 40,000 games, ROM24 should just have 1M bit capacity.

[0023] Furthermore, ports 25 and 26 and the key interface circuitry 27 are connected to a system bus 29. And while the transceiver circuit 12 is controlled through a port 25, data are accessed between the baseband processing circuits 13 through a port 26. Furthermore, KK various kinds of actuation key K1-, such as a speaking key and a dialing key, is connected to an interface circuitry 27.

[0024] Moreover, while a ringer 32 is connected through the drive circuit 31, a display device 34, for example, LCD, is connected to a bus 29 through a display controller 33. And if data are supplied to a display controller 33, while the data is written in the memory (not shown) which the controller 33 contains, it is read with a predetermined period, and the read data will be changed into an indicative data, LCD34 will be supplied, and the alphabetic character (a figure and a notation are included) corresponding to the data supplied to the controller 33 will be displayed on LCD34.

[0025] In such a configuration, dispatch of a terminal 1, arrival, a message, etc. are performed like a common PHS terminal. Moreover, while a terminal 1 is in an effective wireless zone as mentioned above, identification code CS-ID transmitted from the base station corresponding to the wireless zone is memorized by RAM23, and it enables it to identify it in the base station.

[0026] And if the predetermined key of KK actuation key K1- is operated when a terminal 1 awaits, for example and is in a condition, by taking out the addition identification code for the outdoor public from identification code CS-ID memorized by RAM23, and referring to a data table DTBL, that addition identification code for the outdoor public will be changed into the alphabetic data in which the corresponding whereabouts of a base station is shown, and this alphabetic data will be supplied to a controller 33.

[0027] Therefore, as shown in drawing 3, the address of the base station where the character string

corresponding to the alphabetic data supplied to the controller 33, i.e., itself, has given the wireless zone which is now is displayed on LCD34. And generally the size of a wireless zone is about radius 100m as mentioned above in this case.

[0028] Therefore, the possessor of a terminal 1 will be within the limits of about radius 100m from the address displayed on LCD34. That is, it means that the location in which the possessor of a terminal 1 is present was displayed with the about [100m] error. Incidentally, in the common receiver for GPS navigation, an error is about 30m.

[0029] Moreover, a near distance from a base station, i.e., a near distance from the address currently displayed, can be known by displaying the receiving level of the electric wave from a base station so that it may be shown at this time, for example, drawing 3.

[0030] In this way, according to this terminal 1, the present address of the possessor of that terminal 1 can be known by using identification code CS-ID of a base station. And if ROM24 of a data table DTBL is removed in that case, since it will be the same configuration as the terminal of common PHS, there are few rises of cost.

[0031] And the current position can be known with the terminal 1 possessed as an object for a message, and it is not necessary to possess the equipment of dedication like the receiver for GPS navigation.

[0032] Furthermore, it is not necessary to an old system to make an addition or modification of special hardware or software to an entrepreneur side.

[0033] In ****, although it is the case where the terminal 1 contains the data table DTBL, drawing 4 is the case where a data table DTBL is prepared for the exterior which can be accessed from a terminal 1. That is, in drawing 4, although illustration is not carried out while a base station CS 11 ~ CS1N, CS21~CS2M, and — are connected to a network 2, other networks, telephones, etc. are connected to this network 2.

[0034] And while a host office (computer) 3 is connected as a database in a network 2 in the case of drawing 4, a data table DTBL is prepared for this host office 3. Furthermore, the specific telephone number (line number) is given to a host office 3. In addition, ROM24 and a data table DTBL are not formed in a terminal 1.

[0035] In such a configuration, if it sends to a host office 3 from a terminal 1, thereby, a terminal 1 will be connected to a host office 3 through a base station and a network 2 (if it telephones). Then, in a terminal 1, the addition identification code for the outdoor public of identification code CS-ID of the base station by which current connection is made is taken out from RAM23; and this code is sent to a host office 3 through a base station and a network 2.

[0036] Then, in a host office 3, the supplied addition identification code for the outdoor public is changed into the alphabetic data in which the address of the base station which corresponds by referring to a data table DTBL is shown, and this alphabetic data is sent to a terminal 1 through a network 2 and a base station.

[0037] In addition, the alphabetic data in which the address of the addition identification code for the outdoor public and a base station is shown in this case can be transmitted and received by the low-speed accompanying control channel (data rates are 3.2kbps(es)).

[0038] Therefore, as shown in drawing 3, the address of the base station where the character string corresponding to the alphabetic data supplied to the controller 33, i.e., itself, has given the wireless zone which is now is displayed on LCD34. Therefore, the location in which a possessor is present will be displayed on a terminal 1 with the error which is about 100m.

[0039] And in the case of this drawing 4, since a data table DTBL is in the exterior of a terminal 1, the hardware of a terminal 1 becomes being the same as that of a general thing, and there is almost no rise of cost. Moreover, since a data table DTBL is prepared for the host office 3 of dedication, even if there is much amount of data, it is satisfactory, for example, the data of the Kanto district whole region can also be prepared. Furthermore, since a data table DTBL is in a host office 3, renewal of data is easy and a terminal 1 can obtain the newest data.

[0040] In addition, in ****, while enabling attachment and detachment of ROM24 like a PC card to a terminal 1, the contents of the data table DTBL of ROM24 can also be used as the data of for example, an all-prefectures unit.

[0041] Moreover, while preparing the image data displayed on the data table DTBL of ROM24 or a host office 3 as a map, for example, displaying the map of the range of 300mx300m on LCD34, it can also display so that the corresponding base station may be located in the center of a map. And when transmitting the image data of a map to a terminal 1 from a host office 3, it may be made to perform the enlarged display for a specification part that what is necessary is just to use a high-speed accompanying control channel (for data rates to be 32kbps(es)).

[0042] Furthermore, when preparing the host office 3 of dedication, guidance to facilities near the base station, such as the service of those other than map information, for example, shopping, a restaurant, and a hotel, etc. can also be offered.

[0043] Moreover, when displaying a map on LCD34, the display rectangle (scale) of a map is changed according to the receiving level of the electric wave from a base station, since it is close to a base station when receiving level is high, it considers as an enlarged display, and since the base station is far when receiving level is low, it can also consider as a reduced display.

[0044]

[Effect of the Invention] According to this invention, the present address of the possessor of a terminal can be known by using the identification code of a base station. And there are few rises of the cost of a terminal in that case.

[0045] And the current position can be known with the terminal possessed as an object for a message, and it is not necessary to possess the equipment of dedication like the receiver for GPS navigation. Furthermore, it is not necessary to an old system to make an addition or modification of special hardware or software to an entrepreneur side.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the schematic diagram showing one gestalt of this invention.

[Drawing 2] It is drawing showing one gestalt of a data table.

[Drawing 3] It is drawing showing the example of a display of a result.

[Drawing 4] It is the schematic diagram showing other gestalten of this invention.

[Drawing 5] It is drawing showing a signal format.

[Drawing 6] It is drawing for explaining this invention.

[Description of Notations]

1 Terminal

2 Network

3 Host Office

10 Sound Signal Circuit

12 Transceiver Circuit

13 Baseband Processing Circuit

14 Earphone

15 Telephone Transmitter

20 Microcomputer

21 CPU

22 ROM (for Program)

24 ROM (for Data Tables)

33 Display Controller

34 LCD

DTBL Data table

K1-KK Actuation key

[Translation done.]